

PATENT ABSTRACTS OF JAPAN

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(71)Applicant : FUJITSU GENERAL LTD

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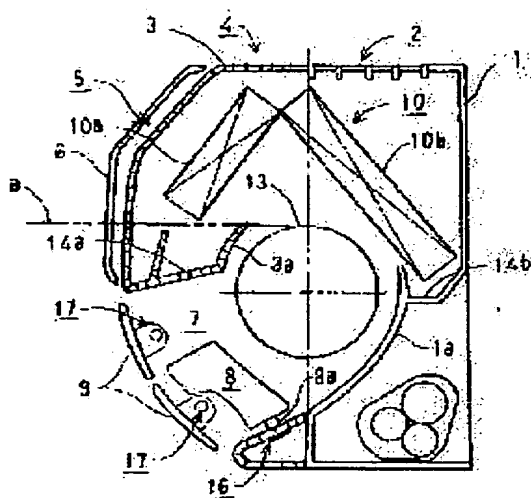
(72)Inventor : HAMANO HIROYUKI

(54) AIR-CONDITIONER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a wall-hang-type air-conditioner where a blowing fan and a fan motor can be removed to the front of a body in the state where a front panel has been removed.

SOLUTION: A heat exchanger 10 consisting of a rear inclination part 10a where an upper portion is inclined to the rear and a lower inclination part 10b where the upper end of the rear inclination part is bent and is inclined downward, and a blowing fan 13 that is arranged at the lower portion of the rear inclination part 10a are provided at an air passage for connecting a rear suction port 2, a front suction port 4 and a front suction port 5, and an outlet 7, and a drain pan that is provided at the lower portion of the heat exchanger is composed of a front drain pan 14a that is integrated into the front panel 3 corresponding to the lower end of the rear inclination part and a rear drain pan 14b that is integrated into a base 1 corresponding to the lower end of the lower inclination part.



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CLAIMS

[Claim(s)]

[Claim 1] The base which the front face was opened wide, and posterior part inlet port was prepared in the top-face posterior part, and constituted the posterior part of a body, The front panel where front inlet port was prepared in the front upper part, and the outlet was prepared for the anterior part inlet port with which the front face of this base was equipped, and which equipped top-face anterior part with the intake grill in the front lower part, respectively, the right and left supported to revolve by the posterior part of said outlet -- wind direction -- the upper and lower sides supported to revolve modification plates and ahead [its] -- wind direction -- with a modification plate The back ramp toward which it was prepared in the air duct which connects said posterior part inlet port, said anterior part inlet port and said front inlet port, and said outlet, and the upper part inclined back, The heat exchanger which consists of the declination section which bent the upper limit of this back ramp and was made to incline caudad, It consists of a blower fan which was connected with the drive motor and supported to revolve by the pivot section, and a drain pan prepared in the lower part of said heat exchanger. The air conditioner characterized by coming to consist of said drain pans an anterior part drain pan formed in said front panel at one corresponding to the lower limit of said back ramp, and a posterior part drain pan formed in said base at one corresponding to the lower limit of said declination section.

[Claim 2] The air conditioner according to claim 1 characterized by being arranged and becoming as the lower limit of said back ramp serves as mostly the periphery upper limit section of said blower fan with homotopic or its high order.

[Claim 3] The air conditioner according to claim 1 to which said anterior part drain pan is characterized by coming to be prepared in a high order rather than said posterior part drain pan while the lower limit of said declination section extends to a lower part rather than the lower limit of said back ramp.

[Claim 4] The air conditioner according to claim 1 or 3 characterized by coming to form in one the headrace which leads drain water to said posterior part drain pan from said anterior part drain pan at the at least 1 side of said front panel.

[Claim 5] The air conditioner according to claim 4 characterized by coming to form in the periphery of this exhaust port at one the drain cock who projects outside while preparing the exhaust port which discharges drain water to said posterior part drain pan.

[Claim 6] The air conditioner according to claim 1 characterized by said drive motor consisting of a posterior part attaching part prepared in said base corresponding to the posterior part of this drive motor, and an anterior part attaching part prepared in said front panel corresponding to anterior part, and coming to hold it that there is almost no clearance in these posterior part attaching part and an anterior part attaching part.

[Claim 7] The air conditioner according to claim 1 characterized by said pivot section consisting of a bearing object which supports the driving shaft of said drive motor to revolve, consisting of posterior part bearing prepared in said base corresponding to the posterior part of a coaxial acceptor, and anterior part bearing prepared in said front panel corresponding to anterior part, and coming to hold that there is almost no clearance in these posterior part bearing and anterior part bearing.

[Claim 8] The air conditioner according to claim 7 characterized by said bearing object consisting of oilless metal.

[Claim 9] The air conditioner according to claim 7 characterized by said bearing object consisting of

synthetic resin which has self-lubricity.

[Claim 10] said right and left -- wind direction -- the first pivot section which supports modification plates to revolve -- these right and left -- wind direction -- the air conditioner according to claim 1 characterized by consisting of the first pivot prepared in the lower part of modification plates, respectively, and two or more first pivot holes prepared in the base of said outlet corresponding to this.

[Claim 11] said upper and lower sides -- wind direction -- the second pivot section which supports a modification plate to revolve -- the bottom of the same as the above -- wind direction -- the air conditioner according to claim 1 characterized by consisting of the second pivot prepared in the both sides of a modification plate, and the second pivot hole prepared in the both-sides side of said outlet corresponding to this.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the structure which enabled it to remove a blower fan and a fan motor ahead of a body where a front panel is removed in a detail more with respect to the air conditioner of a wall type.

[0002]

[Description of the Prior Art] The air conditioner of the conventional wall type For example, the base 1 which constitutes the posterior part of a body as drawing 4 shows, The front panel 3 with which the front face of this base 1 was equipped, and inlet port 2' prepared in the front upper part and the top face of this front panel 3, the outlet 7 prepared in the front lower part, and the right and left supported to revolve by the posterior part of this outlet 7 free [rotation] -- wind direction -- the upper and lower sides supported to revolve free [rotation] the modification plates 8 and ahead [its] -- wind direction -- with the modification plate 9 It is prepared in the air duct which connects said inlet port 2' and said outlet 7. Vertical section 10a', heat exchanger 10' which consists of back ramp 10b' which bent the upper limit of this vertical section 10a', and was made to incline back, and this heat exchanger 10 -- ' It was the configuration which consists of a blower fan 13 which sends out the air by which heat exchange was carried out to said outlet 7.

[0003] However, since the fan 13 of the broadcasting style was turned caudad the front-face side of a body and was removed after removing said front panel 3 from said base 1 in case said blower fan 13 is removed, for example at the time of a maintenance, when the wardrobe etc. was installed under this body, it will be necessary to move this and had the problem that workability worsened. In addition, since it had the composition that the fan 13 of the broadcasting style must be turned ahead of a body, and must be removed after [said heat exchanger 10'] removing said vertical section 10a' at least in order to turn said blower fan 13 ahead of a body and to remove it, it was too many inconvenient.

[0004]

[Problem(s) to be Solved by the Invention] It aims at offering the air conditioner of the wall type which enabled it to remove a blower fan and a fan motor ahead of a body where a front panel is removed in view of the above-mentioned trouble in this invention.

[0005]

[Means for Solving the Problem] The base which the front face was opened wide, and posterior part inlet port was prepared in the top-face posterior part, and constituted the posterior part of a body in order that this invention might solve the above-mentioned technical problem, The front panel where front inlet port was prepared in the front upper part, and the outlet was prepared for the anterior part inlet port with which the

front face of this base was equipped, and which equipped top-face anterior part with the intake grill in the front lower part, respectively, the right and left supported to revolve by the posterior part of said outlet -- wind direction -- the upper and lower sides supported to revolve modification plates and ahead [its] -- wind direction -- with a modification plate The back ramp toward which it was prepared in the air duct which connects said posterior part inlet port, said anterior part inlet port and said front inlet port, and said outlet, and the upper part inclined back, The heat exchanger which consists of the declination section which bent the upper limit of this back ramp and was made to incline caudad, It consists of a blower fan which was connected with the drive motor and supported to revolve by the pivot section, and a drain pan prepared in the lower part of said heat exchanger. Said drain pan consists of an anterior part drain pan formed in said front panel at one corresponding to the lower limit of said back ramp, and a posterior part drain pan formed in said base at one corresponding to the lower limit of said declination section.

[0006] Moreover, the lower limit of said back ramp has composition arranged so that it may become the periphery upper limit section of said blower fan with homotopic or its high order mostly.

[0007] Moreover, while the lower limit of said declination section extends to a lower part rather than the lower limit of said back ramp, said anterior part drain pan has composition prepared in the high order from said posterior part drain pan.

[0008] Moreover, it has composition which formed in one the headrace which leads drain water to said posterior part drain pan from said anterior part drain pan at the at least 1 side of said front panel.

[0009] Moreover, while preparing the exhaust port which discharges drain water to said posterior part drain pan, it has composition which formed in the periphery of this exhaust port at one the drain cock who projects outside.

[0010] Moreover, said drive motor consists of a posterior part attaching part prepared in said base corresponding to the posterior part of this drive motor, and an anterior part attaching part prepared in said front panel corresponding to anterior part, and has composition held that there is almost no clearance in these posterior part attaching part and an anterior part attaching part.

[0011] Moreover, it consists of a bearing object which supports the driving shaft of said drive motor to revolve, and said pivot section consists of posterior part bearing prepared in said base corresponding to the posterior part of a coaxial acceptor, and anterior part bearing prepared in said front panel corresponding to anterior part, and has composition held that there is almost no clearance in these posterior part bearing and anterior part bearing.

[0012] Moreover, said bearing object has composition which consists of oilless metal.

[0013] Moreover, said bearing object has composition which consists of synthetic resin which has self-lubricity.

[0014] moreover, said right and left -- wind direction -- the first pivot section which supports modification plates to revolve -- these right and left -- wind direction -- it has composition which consists of the first pivot prepared in the lower part of modification plates, respectively, and two or more first pivot holes prepared in the base of said outlet corresponding to this.

[0015] furthermore, said upper and lower sides -- wind direction -- the second pivot section which supports a modification plate to revolve -- the bottom of the same as the above -- wind direction -- it has composition which consists of the second pivot prepared in the both sides of a modification plate, and the second pivot hole prepared in the both-sides side of said outlet corresponding to this.

[0016]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained as an example based on an accompanying drawing. Drawing 1 is the sectional view of the air conditioner of the wall type by this invention, drawing 2 is the decomposition perspective view of the air conditioner of the wall type by this invention, drawing 3 is the explanatory view of the air conditioner of the wall type by this invention, (A) is an important section sectional view and (B) is an important section perspective view.

[0017] The base which 1 constituted the posterior part of the air-conditioner body of a wall type, and equipped the top-face posterior part with posterior part inlet port 2 in drawing, Casing which holds the blower fan which continuation formation of the 1a is carried out at this base 1, and is mentioned later, The front face of said base 1 is equipped with 3, and it equips top-face anterior part with anterior part inlet port 4. The front panel which equipped the front upper part with front inlet port 5, and 6 are prepared in this front panel 3 removable. The intake grill which constitutes said front inlet port 5, the outlet by which 7 was prepared in the front lower part of said front panel 3, the right and left with which 8 was supported to revolve by the posterior part of this outlet 7 free [rotation] by the first pivot section 16 -- wind direction --

modification plates -- 9 -- these right and left -- wind direction -- the upper and lower sides supported to revolve free [rotation by the second pivot section 17] ahead of modification plates -- wind direction -- a modification plate -- back ramp 10a which 10 is prepared in the air duct which connects said posterior part inlet port 2, said anterior part inlet port 4, and said front inlet port 5 and said outlet 7, and was made to incline back this back ramp 10a Declination section 10b which bent upper limit and which was made to incline caudad from -- the becoming heat exchanger -- It is the blower fan which 13 turned and sent out the air in which heat exchange was carried out by this heat exchanger 10 to said outlet 7, was connected with driving shaft 11a of a drive motor 11, and was supported to revolve by the pivot section 12. Said back ramp 10a which constitutes said heat exchanger 10 And said declination section 10b A drain pan is prepared in the lower part, respectively, and the electrical item box f is established in the 1 side of said base 1.

[0018] In the air conditioner of the wall type which becomes with said configuration, where said front panel 3 is removed, said blower fan 13 and fan motor 11 are explained below about the structure it enabled it to remove ahead of a body. said drain pan -- said back ramp 10a Anterior part drain pan 14a formed in said front panel 3 at one corresponding to the lower limit said declination section 10b Posterior part drain pan 14b formed in said base 1 at one corresponding to the lower limit It has becoming composition. from -- by this It is said anterior part drain pan 14a especially. While being able to finish a dimension and a configuration correctly as compared with a case so that it may be manufactured according to an individual, it becomes the advantageous structure in cost. in addition, said anterior part drain pan 14a **** -- it has the composition that continuation formation of the stabilizer 3a was carried out.

[0019] Moreover, said back ramp 10a The lower limit has composition arranged so that it may become the periphery upper limit section of said blower fan 13 shown with a two-dot chain line a by drawing 1 with homotopic or its high order mostly. By this For example, in case said blower fan 13 is removed at the time of a maintenance, it is said anterior part drain pan 14a. By removing said front panel 3 formed in one from said base 1 The fan 13 of the broadcasting style can be turned ahead of a body, can be removed now, and it becomes the structure it enabled it to raise workability sharply.

[0020] Moreover, said declination section 10b A lower limit is said back ramp 10a. While extending to a lower part rather than a lower limit Said anterior part drain pan 14a Said posterior part drain pan 14b It has composition prepared in the high order. By this It is as said explanation said back ramp 10a. While arranging a lower limit so that it may become the periphery upper limit section of said blower fan 13 with homotopic or its high order mostly Said declination section 10b A lower limit is made to extend in the possible range, and it becomes the structure to which it was made for the heat exchange capacity as said heat exchanger 10 not to fall.

[0021] moreover, the at least 1 side of said front panel 3 -- said anterior part drain pan 14a from -- said posterior part drain pan 14b It has composition which formed in one the headrace 15 to which drain water is led. By this without it manufactures said headrace 15 by the member according to individual -- said anterior part drain pan 14a inner drain water -- said posterior part drain pan 14b collecting -- this posterior part drain pan 14b from -- it becomes the structure it enabled it to discharge outside.

[0022] Moreover, said posterior part drain pan 14b While preparing the exhaust port which discharges drain water, it becomes the structure it enabled it to discharge smoothly from said drain cock 16 who has composition which formed in the periphery of this exhaust port at one the drain cock 16 who projects outside, and becomes with said advantageous configuration in cost by this, without leaking drain water.

[0023] Moreover, the posterior part attaching part a by which said drive motor 11 was formed in said base 1 corresponding to the posterior part of this drive motor 11 It consists of anterior part attaching parts b prepared in said front panel 3 corresponding to anterior part, and has composition held that there is almost no clearance in these posterior part attaching part a and the anterior part attaching part b. By this It becomes the structure which pinches said drive motor 11 easily and enabled it to hold it correctly by said posterior part attaching part a and said anterior part attaching part b.

[0024] Moreover, said pivot section 12 is driving shaft 11a of said drive motor 11. Posterior part bearing d which consisted of a bearing object c to support to revolve and was prepared in said base 1 corresponding to the posterior part of the coaxial acceptor c It consists of anterior part bearings e prepared in said front panel 3 corresponding to anterior part, and has composition held that there is almost no clearance in these posterior part bearing d and the anterior part bearing e. By this It becomes the structure which pinches said bearing object c easily and enabled it to hold it correctly by said posterior part bearing d and said anterior part bearing e.

[0025] Moreover, it has the composition that said bearing object c consists of oilless metal like a sintered

alloy, lubricity is suitably given to said bearing object c by this, and it is said driving shaft 11a. It becomes the structure it enabled it to support to revolve smoothly.

[0026] Moreover, said bearing object c has composition which consists of synthetic resin which has self-lubricity like polyacetal resin, lubricity can be suitably given to said bearing object c which can be manufactured by this more cheaply than said oilless metal, and it is said driving shaft 11a. It becomes the structure it enabled it to support to revolve smoothly.

[0027] moreover, said right and left -- wind direction -- the first pivot section 16 which supports the modification plates 8 to revolve -- these right and left -- wind direction -- with first pivot 8a prepared in the lower part of the modification plates 8, respectively It has composition which consists of two or more first pivot hole 7a prepared in the base of said outlet 7 corresponding to this. By this said right and left -- wind direction -- wind direction [in / the modification plates 8 can be correctly supported to revolve now and / the lower part of said outlet 7 with many blow-off air flow rates] -- it becomes the structure into which it enabled it to change effectively.

[0028] furthermore, said upper and lower sides -- wind direction -- the second pivot section 17 which supports the modification plate 8 to revolve -- the bottom of the same as the above -- wind direction -- with second pivot 9a prepared in the both sides of the modification plate 9 It has composition which consists of second pivot hole 7b prepared in the both-sides side of said outlet 7 corresponding to this. By this said upper and lower sides -- wind direction -- without it prepares the stanchion according to individual equipped with said second pivot hole 7b for supporting the modification plate 8 to revolve -- the bottom of the same as the above -- wind direction -- it becomes the structure which enabled it to support the modification plate 8 to revolve with the simple configuration made advantageous in cost.

[0029] By the above configuration, as drawing 3 (A) and drawing 3 (B) show drawing 1 and drawing 2 said drain pan -- said back ramp 10a Anterior part drain pan 14a formed in said front panel 3 at one corresponding to the lower limit said declination section 10b Posterior part drain pan 14b formed in said base 1 at one corresponding to the lower limit from, since it was made the becoming configuration It is said anterior part drain pan 14a especially. While being able to finish a dimension and a configuration correctly as compared with a case so that it may be manufactured according to an individual It becomes the advantageous structure in cost, and is said back ramp 10a. Since it was made the configuration arranged so that a lower limit may serve as mostly the periphery upper limit section of said blower fan 13 shown with the two-dot chain line a of drawing 1 with homotopic or its high order For example, by removing said front panel 3 which formed said anterior part drain pan 14a in one from said base 1, in case said blower fan 13 is removed at the time of a maintenance The fan 13 of the broadcasting style can be turned ahead of a body, can be removed now, and it becomes the air conditioner of the wall type it enabled it to raise workability sharply.

[0030]

[Effect of the Invention] According to this invention, it becomes the air conditioner of the wall type which enabled it to remove a blower fan and a fan motor ahead of a body where a front panel is removed as mentioned above.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the sectional view of the air conditioner by this invention.

[Drawing 2] It is the decomposition perspective view of the air conditioner by this invention.

[Drawing 3] It is the explanatory view of the air conditioner of the wall type by this invention, and (A) is an important section sectional view and (B) is an important section perspective view.

[Drawing 4] It is the sectional view of the air conditioner by the conventional example.

[Description of Notations]

- 1 Base
- 1a Casing
- 2 Posterior Part Inlet Port
- 3 Front Panel
- 3a Stabilizer
- 4 Anterior Part Inlet Port
- 5 Front Inlet Port
- 6 Intake Grill
- 7 Outlet
- 8 Right and Left -- Wind Direction -- Modification Plates
- 8a The first pivot
- 9 Upper and Lower Sides -- Wind Direction -- Modification Plate
- 9a The second pivot
- 10 Heat Exchanger
- 10a Back ramp
- 10b Declination section
- 11 Drive Motor
- 11a Driving shaft
- 12 Pivot Section
- 13 Blower Fan
- 14a Anterior part drain pan
- 14b Posterior part drain pan
- 15 Headrace
- 16 Drain Cock
- 17 First Pivot Section
- 18 Second Pivot Section
- Posterior part attaching part
- b Anterior part attaching part
- c Bearing object
- d Posterior part bearing
- e Anterior part bearing
- f Electrical item box

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(71) 出願人 000006611

株式会社富士通ゼネラル

神奈川県川崎市高津区末長1116番地

(72) 発明者 ▲濱▼野 裕之

川崎市高津区末長1116番地 株式会社富士

通ゼネラル内

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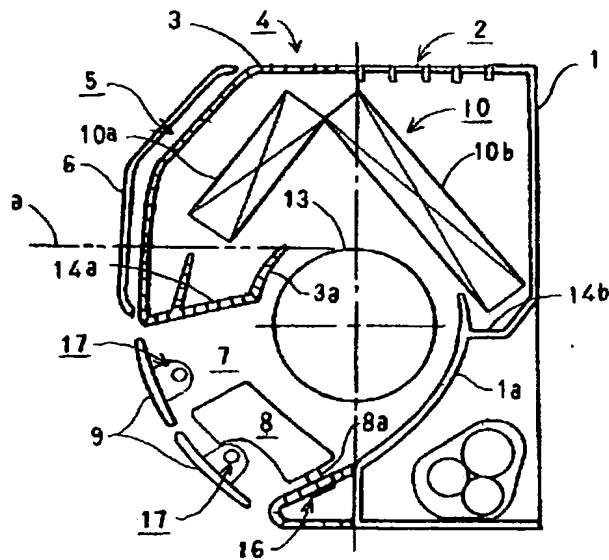
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(54) 【発明の名称】 空気調和機

(57) 【要約】

【課題】 前面パネルを取り外した状態で送風ファンおよびファンモータを本体の前方に取り外しできるようにした壁掛け式の空気調和機を提供する。

【解決手段】 後部吸込口2、前部吸込口4および前面吸込口5と、吹出口7とを結ぶ空気通路に、上部が後方に傾斜した後方傾斜部10aと、同後方傾斜部の上端を折曲して下方に傾斜させた下方傾斜部10bとからなる熱交換器10と、前記後方傾斜部10aよりも下位に配した送風ファン13とを設け、前記熱交換器の下部に設けられるドレンパンを、前記後方傾斜部の下端に対応して前面パネル3に一体に形成された前部ドレンパン14aと、前記下方傾斜部の下端に対応してベース1に一体に形成された後部ドレンパン14bとで構成した。



【特許請求の範囲】

【請求項1】 前面を開放して上面後部に後部吸込口が設けられ、本体の後部を構成したベースと、同ベースの前面に装着され、上面前部に吸込グリルを備えた前部吸込口が、前面上部に前面吸込口が、前面下部に吹出口が夫々設けられた前面パネルと、前記吹出口の後部に軸支された左右風向変更板群およびその前方に軸支された上下風向変更板と、前記後部吸込口、前記前部吸込口および前記前面吸込口と、前記吹出口とを結ぶ空気通路に設けられ、上部が後方に傾斜した後方傾斜部と、同後方傾斜部の上端を折曲して下方に傾斜させた下方傾斜部とからなる熱交換器と、駆動モータに連結され軸部により軸支された送風ファンと、前記熱交換器の下部に設けられたドレンパンとからなり、前記ドレンパンが、前記後方傾斜部の下端に対応して前記前面パネルに一体に形成された前部ドレンパンと、前記下方傾斜部の下端に対応して前記ベースに一体に形成された後部ドレンパンとで構成されてなることを特徴とする空気調和機。

【請求項2】 前記後方傾斜部の下端が、前記送風ファンの周縁上端部とほぼ同位置またはその上位となるように配置されてなることを特徴とする請求項1に記載の空気調和機。

【請求項3】 前記下方傾斜部の下端が、前記後方傾斜部の下端よりも下方まで延出されるとともに、前記前部ドレンパンが、前記後部ドレンパンよりも上位に設けられてなることを特徴とする請求項1に記載の空気調和機。

【請求項4】 前記前面パネルの少なくとも一側に、前記前部ドレンパンから前記後部ドレンパンにドレン水を導く導水路を一体に形成してなることを特徴とする請求項1または請求項3に記載の空気調和機。

【請求項5】 前記後部ドレンパンに、ドレン水を排出する排出口を設けるとともに、同排出口の周縁に外側に突出するドレンコックを一体に形成してなることを特徴とする請求項4に記載の空気調和機。

【請求項6】 前記駆動モータが、同駆動モータの後部に対応して前記ベースに設けられた後部保持部と、前部に対応して前記前面パネルに設けられた前部保持部とで構成され、これら後部保持部および前部保持部にほぼ隙間なく収容されてなることを特徴とする請求項1に記載の空気調和機。

【請求項7】 前記軸部が、前記駆動モータの駆動軸を軸支する軸受体からなり、同軸受体の後部に対応して前記ベースに設けられた後部軸受部と、前部に対応して前記前面パネルに設けられた前部軸受部とで構成され、これら後部軸受部および前部軸受部にほぼ隙間なく収容されてなることを特徴とする請求項1に記載の空気調和機。

【請求項8】 前記軸受体が、オイルレスメタルからなることを特徴とする請求項7に記載の空気調和機。

【請求項9】 前記軸受体が、自己潤滑性を有する合成樹脂からなることを特徴とする請求項7に記載の空気調和機。

【請求項10】 前記左右風向変更板群を軸支する第一軸部が、同左右風向変更板群の下部に夫々設けられた第一軸と、これに対応して前記吹出口の底面に設けられた複数の第一軸孔とからなることを特徴とする請求項1に記載の空気調和機。

【請求項11】 前記上下風向変更板を軸支する第二軸部が、同上下風向変更板の両側に設けられた第二軸と、これに対応して前記吹出口の両側面に設けられた第二軸孔とからなることを特徴とする請求項1に記載の空気調和機。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、壁掛け式の空気調和機に係わり、より詳細には、前面パネルを取り外した状態で送風ファンおよびファンモータを本体の前方に取り外しできるようにした構造に関する。

【0002】

【従来の技術】従来の壁掛け式の空気調和機は、例えば図4で示すように、本体の後部を構成するベース1と、同ベース1の前面に装着された前面パネル3と、同前面パネル3の前面上部および上面に設けられた吸込口2'と、前面下部に設けられた吹出口7と、同吹出口7の後部に回動自在に軸支された左右風向変更板群8およびその前方に回動自在に軸支された上下風向変更板9と、前記吸込口2'と前記吹出口7とを結ぶ空気通路に設けられ、垂直部10a'と、同垂直部10a'の上端を折曲して後方に傾斜させた後方傾斜部10b'とからなる熱交換器10'と、同熱交換器10'により熱交換された空気を前記吹出口7に送出する送風ファン13とからなる構成であった。

【0003】しかしながら、例えばメンテナンス時に前記送風ファン13を取り外す際、前記前面パネル3を前記ベース1から取り外したのちに、同送風ファン13を本体の前面側下方に向けて取り外すようになっていることから、同本体の下方にタンクなどが設置されている場合にはこれを移動させる必要が生じて作業性が悪くなるという問題を有していた。なお、前記送風ファン13を本体の前方に向けて取り外すためには、前記熱交換器10'の少なくとも前記垂直部10a'を取り外したのちに、同送風ファン13を本体の前方に向けて取り外さなければならない構成となっているため余計に不便であった。

【0004】

【発明が解決しようとする課題】本発明においては、上記の問題点を鑑み、前面パネルを取り外した状態で送風ファンおよびファンモータを本体の前方に取り外しできるようにした壁掛け式の空気調和機を提供することを目的とする。

【0005】

【課題を解決するための手段】本発明は、上記課題を解決するため、前面を開放して上面後部に後部吸込口が設けられ、本体の後部を構成したベースと、同ベースの前面に装着され、上面前部に吸込グリルを備えた前部吸込口が、前面上部に前面吸込口が、前面下部に吹出口が夫々設けられた前面パネルと、前記吹出口の後部に軸支された左右風向変更板群およびその前方に軸支された上下風向変更板と、前記後部吸込口、前記前部吸込口および前記前面吸込口と、前記吹出口とを結ぶ空気通路に設けられ、上部が後方に傾斜した後方傾斜部と、同後方傾斜部の上端を折曲して下方に傾斜させた下方傾斜部とからなる熱交換器と、駆動モータに連結され軸部により軸支された送風ファンと、前記熱交換器の下部に設けられたドレンパンとからなり、前記ドレンパンが、前記後方傾斜部の下端に対応して前記前面パネルに一体に形成された前部ドレンパンと、前記下方傾斜部の下端に対応して前記ベースに一体に形成された後部ドレンパンとで構成されている。

【0006】また、前記後方傾斜部の下端が、前記送風ファンの周縁上端部とほぼ同位置またはその上位となるように配置された構成となっている。

【0007】また、前記下方傾斜部の下端が、前記後方傾斜部の下端よりも下方まで延出されるとともに、前記前部ドレンパンが、前記後部ドレンパンよりも上位に設けられた構成となっている。

【0008】また、前記前面パネルの少なくとも一側に、前記前部ドレンパンから前記後部ドレンパンにドレン水を導く導水路を一体に形成した構成となっている。

【0009】また、前記後部ドレンパンに、ドレン水を排出する排出口を設けるとともに、同排出口の周縁に外側に突出するドレンコックを一体に形成した構成となっている。

【0010】また、前記駆動モータが、同駆動モータの後部に対応して前記ベースに設けられた後部保持部と、前部に対応して前記前面パネルに設けられた前部保持部とで構成され、これら後部保持部および前部保持部にほぼ隙間なく収容された構成となっている。

【0011】また、前記軸部が、前記駆動モータの駆動軸を軸支する軸受部からなり、同軸受部の後部に対応して前記ベースに設けられた後部軸受部と、前部に対応して前記前面パネルに設けられた前部軸受部とで構成され、これら後部軸受部および前部軸受部にほぼ隙間なく収容された構成となっている。

【0012】また、前記軸受部が、オイルレスメタルからなる構成となっている。

【0013】また、前記軸受部が、自己潤滑性を有する合成樹脂からなる構成となっている。

【0014】また、前記左右風向変更板群を軸支する第一軸部が、同左右風向変更板群の下部に夫々設けられた第一軸と、これに対応して前記吹出口の底面に設け

られた複数の第一軸孔とからなる構成となっている。

【0015】更に、前記上下風向変更板を軸支する第二軸部が、同上下風向変更板の両側に設けられた第二軸と、これに対応して前記吹出口の両側面に設けられた第二軸孔とからなる構成となっている。

【0016】

【発明の実施の形態】以下、本発明の実施の形態を、添付図面に基づいた実施例として説明する。図1は本発明による壁掛け式の空気調和機の断面図であり、図2は本発明による壁掛け式の空気調和機の分解斜視図であり、図3は本発明による壁掛け式の空気調和機の説明図で、(A)は要部断面図、(B)は要部斜視図である。

【0017】図において、1は壁掛け式の空気調和機本体の後部を構成し、上面後部に後部吸込口2を備えたベース、1aは同ベース1に連続形成されて後述する送風ファンを収容するケーシング、3は前記ベース1の前面に装着され、上面前部に前部吸込口4を備え、前面上部に前面吸込口5を備えた前面パネル、6は同前面パネル3に着脱可能に設けられ、前記前面吸込口5を構成する吸込グリル、7は前記前面パネル3の前面下部に設けられた吹出口、8は同吹出口7の後部に第一軸部16により回動自在に軸支された左右風向変更板群、9は同左右風向変更板群の前方に第二軸部17により回動自在に軸支された上下風向変更板、10は前記後部吸込口2、前記前部吸込口4および前記前面吸込口5と前記吹出口7とを結ぶ空気通路に設けられ、後方に傾斜させた後方傾斜部10aと、同後方傾斜部10aの上端を折曲して下方に傾斜させた下方傾斜部10bとからなる熱交換器、13は同熱交換器10aにより熱交換された空気を前記吹出口7に向けて送出し、駆動モータ11の駆動軸11aに連結され軸部12により軸支された送風ファンで、前記熱交換器10を構成する前記後方傾斜部10aおよび前記下方傾斜部10bの下部にはドレンパンが夫々設けられ、前記ベース1の一側には電装品箱fが設けられている。

【0018】前記構成でなる壁掛け式の空気調和機において、前記前面パネル3を取り外した状態で前記送風ファン13およびファンモータ11を本体の前方に取り外しできるようにした構造について以下に説明する。前記ドレンパンが、前記後方傾斜部10aの下端に対応して前記前面パネル3に一体に形成された前部ドレンパン14aと、前記下方傾斜部10bの下端に対応して前記ベース1に一体に形成された後部ドレンパン14bとからなる構成となっており、これによって、とくに前記前部ドレンパン14aが個別に製作されるような場合に比して、寸法および形状を正確に仕上げることができるとともに、コスト的に有利な構造となる。なお、前記前部ドレンパン14aには、スタビライザ3aが連続形成された構成となっている。

【0019】また、前記後方傾斜部10aの下端が、図1により二点鎖線aで示す前記送風ファン13の周縁上端部

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とほぼ同位置またはその上位となるように配置された構成となっており、これによって、例えばメンテナンス時に前記送風ファン13を取り外す際、前記前部ドレンパン14aを一体に形成した前記前面パネル3を前記ベース1から取り外すことにより、同送風ファン13を本体の前方に向けて取り外すことができるようになって、作業性を大幅に向上させることができるようにした構造となる。

【0020】また、前記下方傾斜部10bの下端が、前記後方傾斜部10aの下端よりも下方まで延出されるとともに、前記前部ドレンパン14aが、前記後部ドレンパン14bよりも上位に設けられた構成となっており、これによって、前記説明のとおり、前記後方傾斜部10aの下端を前記送風ファン13の周縁上端部とほぼ同位置またはその上位となるように配置する一方、前記下方傾斜部10bの下端を可能な範囲で延出させて、前記熱交換器10としての熱交換能力が低下しないようにした構造となる。

【0021】また、前記前面パネル3の少なくとも一側に、前記前部ドレンパン14aから前記後部ドレンパン14bにドレン水を導く導水路15を一体に形成した構成となっており、これによって、前記導水路15を個別の部材で製作することなく、前記前部ドレンパン14a内のドレン水を前記後部ドレンパン14bに集めて、同後部ドレンパン14bから外部に排出できるようにした構造となる。

【0022】また、前記後部ドレンパン14bに、ドレン水を排出する排出口を設けるとともに、同排出口の周縁に外側に突出するドレンコック16を一体に形成した構成となっており、これによって、前記コスト的に有利な構成でなる前記ドレンコック16から、ドレン水を漏らすことなく円滑に排出できるようにした構造となる。

【0023】また、前記駆動モータ11が、同駆動モータ11の後部に対応して前記ベース1に設けられた後部保持部aと、前部に対応して前記前面パネル3に設けられた前部保持部bとで構成され、これら後部保持部aおよび前部保持部bにほぼ隙間なく収容された構成となっており、これによって、前記駆動モータ11を前記後部保持部aと前記前部保持部bとで容易に挟持して正確に保持できるようにした構造となる。

【0024】また、前記支軸部12が、前記駆動モータ11の駆動軸11aを軸支する軸受体cからなり、同軸受体cの後部に対応して前記ベース1に設けられた後部軸受部dと、前部に対応して前記前面パネル3に設けられた前部軸受部eとで構成され、これら後部軸受部dおよび前部軸受部eにほぼ隙間なく収容された構成となっており、これによって、前記軸受体cを前記後部軸受部dと前記前部軸受部eとで容易に挟持して正確に保持できるようにした構造となる。

【0025】また、前記軸受体cが、例えば焼結合金のようなオイルレスメタルからなる構成となっており、これによって、前記軸受体cに適宜潤滑性をもたせて前記駆動軸11aを円滑に軸支できるようにした構造となる。

【0026】また、前記軸受体cが、例えばポリアセタル樹脂のような自己潤滑性を有する合成樹脂からなる構成となっており、これによって、前記オイルレスメタルよりも安価に製作できる前記軸受体cに適宜潤滑性をもたせることができ、前記駆動軸11aを円滑に軸支できるようにした構造となる。

【0027】また、前記左右風向変更板群8を軸支する第一支軸部16が、同左右風向変更板群8の下部に夫々設けられた第一支軸8aと、これに対応して前記吹出口7の底面に設けられた複数の第一支軸孔7aとからなる構成となっており、これによって、前記左右風向変更板群8を正確に軸支できるようにして、吹出空気流量が多い前記吹出口7の下部における風向変更を効果的に行えるようにした構造となる。

【0028】更に、前記上下風向変更板8を軸支する第二支軸部17が、同上下風向変更板9の両側に設けられた第二支軸9aと、これに対応して前記吹出口7の両側面に設けられた第二支軸孔7bとからなる構成となっており、これによって、前記上下風向変更板8を軸支するための前記第二支軸孔7bを備えた個別の支柱を設けることなく、同上下風向変更板8をコスト的に有利にした簡便な構成で軸支できるようにした構造となる。

【0029】以上の構成により、図1と、図2と、図3(A)および図3(B)とで示すように、前記ドレンパンが、前記後方傾斜部10aの下端に対応して前記前面パネル3に一体に形成された前部ドレンパン14aと、前記下方傾斜部10bの下端に対応して前記ベース1に一体に形成された後部ドレンパン14bとからなる構成にしたので、とくに前記前部ドレンパン14aが個別に製作されるような場合に比して、寸法および形状を正確に仕上げるができるとともに、コスト的に有利な構造となり、また、前記後方傾斜部10aの下端が、図1の二点鎖線aで示す前記送風ファン13の周縁上端部とほぼ同位置またはその上位となるように配置された構成にしたので、例えばメンテナンス時に前記送風ファン13を取り外す際、前記前部ドレンパン14aを一体に形成した前記前面パネル3を前記ベース1から取り外すことにより、同送風ファン13を本体の前方に向けて取り外すことができるようになって、作業性を大幅に向上させることができるようにした壁掛け式の空気調和機となる。

【0030】

【発明の効果】以上のように本発明によると、前面パネルを取り外した状態で送風ファンおよびファンモータを本体の前方に取り外しできるようにした壁掛け式の空気調和機となる。

【図面の簡単な説明】

【図1】本発明による空気調和機の断面図である。

【図2】本発明による空気調和機の分解斜視図である。

【図3】本発明による壁掛け式の空気調和機の説明図

で、(A)は要部断面図、(B)は要部斜視図である。

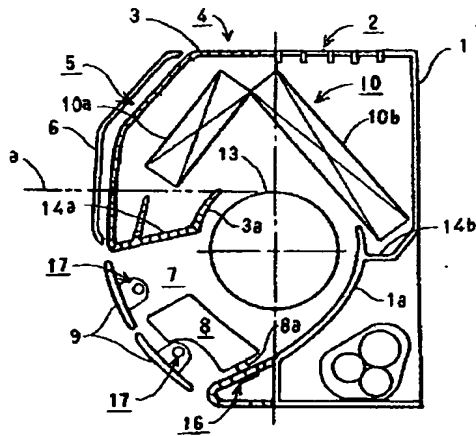
【図4】従来例による空気調和機の断面図である。

【符号の説明】

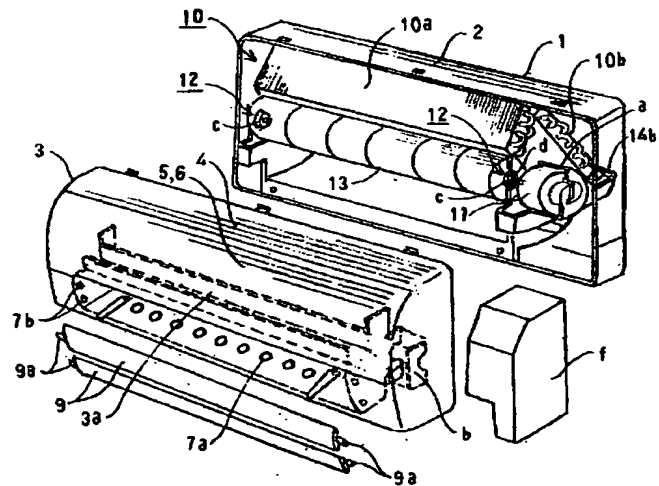
- 1 ベース
- 1a ケーシング
- 2 後部吸込口
- 3 前面パネル
- 3a スタビライザ
- 4 前部吸込口
- 5 前面吸込口
- 6 吸込グリル
- 7 吹出口
- 8 左右風向変更板群
- 8a 第一支軸
- 9 上下風向変更板
- 9a 第二支軸
- 10 熱交換器
- 10a 後方傾斜部

- * 10b 下方傾斜部
- 11 駆動モータ
- 11a 駆動軸
- 12 支軸部
- 13 送風ファン
- 14a 前部ドレンパン
- 14b 後部ドレンパン
- 15 導水路
- 16 ドレンコック
- 10 17 第一支軸部
- 18 第二支軸部
- a 後部保持部
- b 前部保持部
- c 軸受体
- d 後部軸受部
- e 前部軸受部
- * f 電装品箱

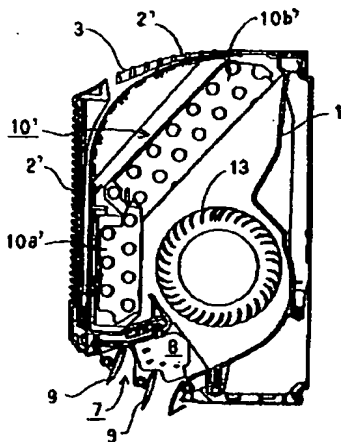
【図1】



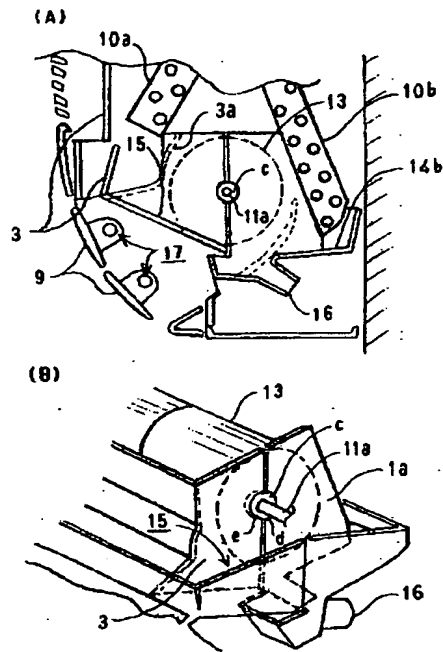
【図2】



【図4】



【図3】



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